

Washington Park Arboretum

BULLETIN

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UW Botanic Gardens
Box 354115
Seattle, WA 98195-4115
JAN 02 2010

Published by the Arboretum

Winter 2009

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— Washington Park Arboretum —

The Arboretum is a 230-acre dynamic garden of trees and shrubs, displaying internationally renowned collections of oaks, conifers, camellias, Japanese and other maples, hollies and a profusion of woody plants from the Pacific Northwest and around the world. Aesthetic enjoyment gracefully co-exists with science in this spectacular urban green space on the shores of Lake Washington. Visitors come to learn, explore, relax or reflect in Seattle's largest public garden.

The Washington Park Arboretum is managed cooperatively by the University of Washington Botanic Gardens and Seattle Parks and Recreation; the Arboretum Foundation is its major support organization.

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Winter 2009 Volume 70. Issue 4.

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ISSN 1046-8749.

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ABOVE: A decorative detail on the interpretive panels at the Arboretum's new Pacific Connections Garden shelter. (Photograph by Steve Whitner.)

ON THE COVER: Photographer Mary Randlett's *Deception Pass 1, 1972* reveals the most essential elements of the Pacific Northwest's landscape, among them: fog, rock, water and evergreens. For an introduction to more of Randlett's extraordinary work, read Rebecca Alexander's article beginning on Page 3.

Our Own Cascadia

As winter damp and dark descend in the Northwest, our thoughts tend to turn to the things that brighten our winter days—a fierce hummingbird working the bright-yellow flowers of a mahonia, lingering sprays of “Red Garnet” penstemon flowers in the side border, a flock of dusky juncos working the ground below the feeder where squirrels have greedily spilled out a bounty of sunflower seeds. And, of course, to the feast of sight and smell that greets us each year at the Northwest Flower and Garden Show. If kids warm themselves in their eager anticipation of what Santa Claus might bring, many of their parents and grandparents dream of the mid-February abundance of the Show.

This year we are awaiting it with special anticipation. Longtime Arboretum Foundation friends and supporters Bob Lilly and Phil Wood, both distinguished designers and plantsmen, have teamed up to design the exhibit. They have shown us their preliminary sketch, and it promises to be a wonderful garden.

The theme will be “Cascadia,” and the garden will feature rock work and native plants in keeping with the Cascadia Forest of the Pacific Connections Garden. Cascadia will be the first of the new focal forests to be completed in Pacific Connections, so Bob and Phil’s display garden will not only be a harbinger of spring but of the new forest to come.

This display garden, as with our other recent exhibits, will be a collaborative effort

with our Arboretum partners, the Seattle Department of Parks and Recreation and the University of Washington Botanic Gardens.



The Parks Department generously will supply carpenters to help build the framing, and they will give us space in their Jefferson Greenhouses in which to hold and force our plant material. The University’s crew, as always, will provide their much-appreciated expertise and manpower to help create the exhibit. But it is the Foundation’s outstanding cadre of dedicated volunteers—

led by our Chair, Mike Allen—that will be responsible for the major part of the work involved in transforming Bob and Phil’s drawings, and the Parks Department’s wooden frame, into the bit of Cascadian magic that will sparkle at the Show. We are grateful to all of them for their part in brightening our winter days.

We look forward to greeting you at the Arbor Eden Preview Gala on February 17th, the night before the Show opens to the public, or seeing you during the Show itself. In the meanwhile, cherish the hummingbirds and juncos, and the dreams of the summer garden to come. ~

Cheers to you all,

Paige Miller

Paige Miller, Executive Director,
Arboretum Foundation



Mary Randlett's Landscape Photography: An Eye to See

BY REBECCA ALEXANDER

Think of images that define the Pacific Northwest—the region's natural beauty, its artistic and literary heritage, its architecture and public spaces—and an artist whose name undoubtedly springs to mind is photographer Mary Randlett. For over five decades, she has been observing, documenting and illuminating the essence of the Northwest in her work, and she is as much a part of our cultural landscape as the forests, mountains, tidepools, rain and fog are essential elements of the physical landscape.

If you are looking out your window and feeling the weight of winter's bleakness, imagine seeing the scene through Mary Randlett's lens, and a new kind of vision will unfold.

A native Seattleite, Randlett was given her first camera by her father when she was 10 or 11, and she took her first photographs in the San Juan Islands. Although she briefly studied photography in school, she soon learned that she did not need to be told how to take pictures. Her own vision and inner

ABOVE: *Pond in Morris Grave's Garden, May 1979*

sense of what makes a captivating image had already begun to develop.

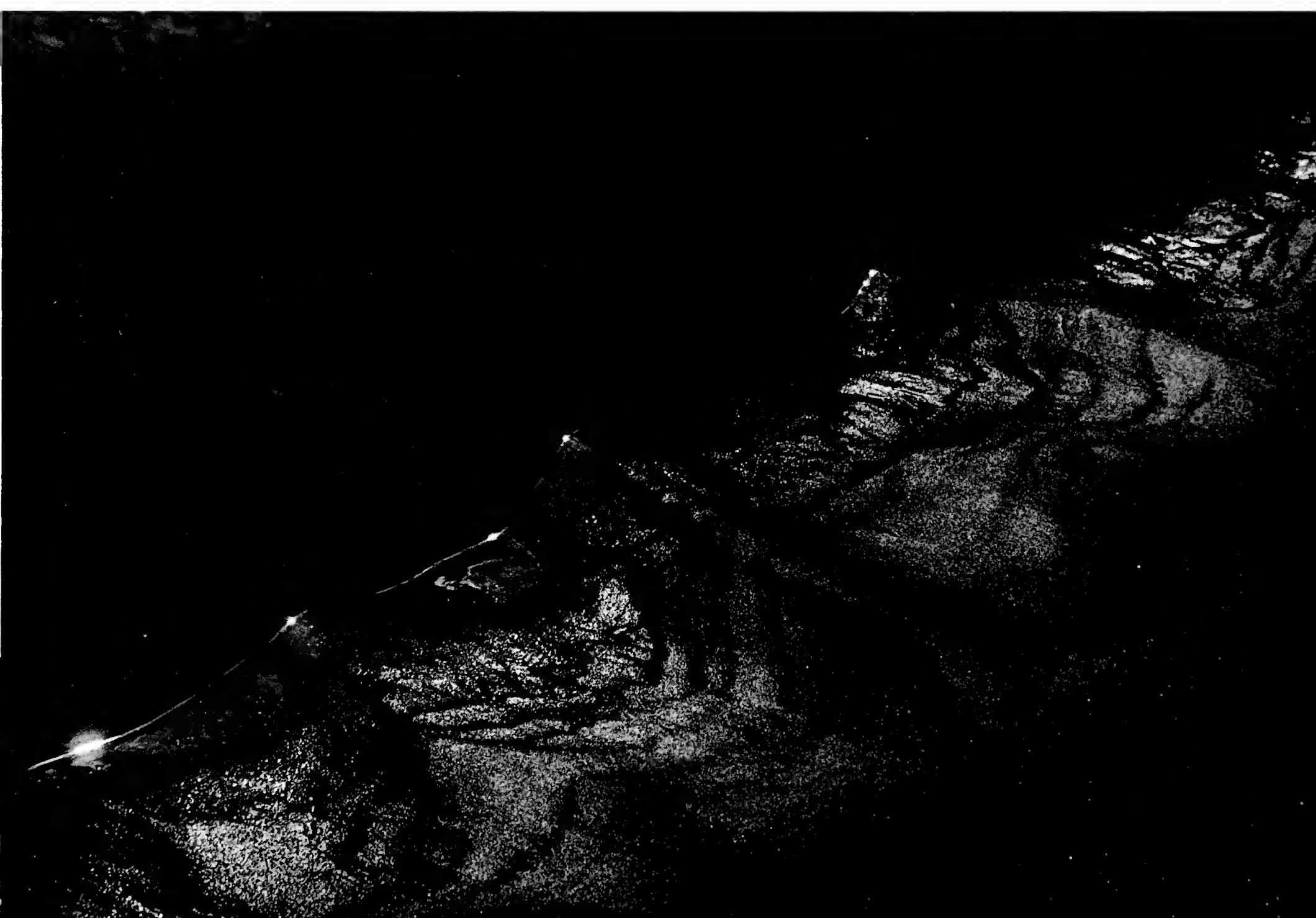
Randlett won her first photography prize while in college and sought a career in the field after graduating. While serving as an apprentice to Hans Jorgensen, who ran a commercial photography studio in Seattle, she learned to use the twin-lens Rolleiflex camera and began taking professional portraits. Randlett's career photographing artists and writers began when her mother, Elizabeth Bayley Willisan—an art dealer and curator at the Henry Art Gallery, the San Francisco Museum of Fine Art, and the Palace of the Legion of Honor—introduced Mary to Morris

Graves, Mark Tobey and Henry Miller. In her portraits, Randlett transcends the static atmosphere of traditional portraiture. By capturing artists in their "native" environments—Jacob Lawrence in his studio, James Washington with his sculpting tools, Morris Graves in his garden—she is able to reveal the inner spirit of her subjects. For examples of her portraiture, see "Iridescent Light: The Emergence of Northwest Art" by Randlett and Deloris Tarzan Ament (University of Washington Press, 2002).

I met with Randlett last spring at "Veiled Northwest," an exhibit of her work shown in the Tacoma Art Museum between September 2007 and May 18, 2008. The show featured

BELOW: *River's Edge, February 1991*

RIGHT: *Winter, Bloedel Reserve, Bainbridge Island, January 1992*





work from the past four decades and closely coincided with the University of Washington Press's publication in 2007 of a retrospective of her landscape photography in the book "Mary Randlett: Landscapes." As we viewed the show together, Mary pointed out some of her favorite photographs and provided a lively narrative. As we talked, her long-time involvement in the local artistic landscape was evident. Many of the photographs prompted anecdotes about her friends, who are among the Northwest's best-known painters, sculptors and writers.

From the start, Randlett knew her own artistic direction and needed only technical guidance. But, while little influenced by other photographers, she benefited from a lot of cross-pollination with friends in the arts. For example, Randlett once had admired a

landscape painting done by her friend Neil Meitzler. She later came across a view at Snoqualmie Pass that brought it to mind and captured it in her photograph *Falling Water*. Randlett often takes pictures that are a kind of response or tribute to the work of her friends: Look at some of Randlett's strongly abstract and patterned photographs and you may think of the paintings of Leo Kenney, Kenneth Callahan, Guy Anderson and Mark Tobey, or the sculptures and sumi paintings of George Tsutakawa. Leo Kenney, who told her that "dark against light gives tension"; British Columbia painter Emily Carr, whose paintings are strongly identified with the Northwest landscape; and the late 19th-early 20th century painter Albert Pinkham Ryder, whose veiled daylight scenes resemble

moonlight, have all influenced Randlett—as has an intense interest in Asian art, which is evident in the composition of some of Randlett's landscape images. Her photographs, in turn, have inspired others—like the poet Denise Levertov, who wrote seven poems based on them that are included in the University of Washington Press book. As Randlett has said, “Each artist that I've met has given me an eye to see something I would have missed otherwise.”

Though she has done portraiture and documentary photographs of public art and architecture, Randlett's preferred place to work is always outside, in nature. Her childhood experiences skiing at Alpental, sailing near the northern part of Bainbridge Island, and spending summers on Orcas Island have given her a foundation for her intimate knowledge of Washington's natural landscapes. She describes keeping a mental catalog of all the places to go and the times of year to see their changes, but her working methods are spontaneous, intuitive and open to chance—to those moments “when the landscape reveals its essence.” She is also intrepid and describes several excursions she has taken on narrow roads full of hairpin turns, just to see what she might find. On such a road near Obstruction Pass, she rounded a bend to discover a dazzling view of summer wildflowers. She went 12 miles up a road in Deer Park (part of Olympic National Park) and found a 360-degree view of Hurricane Ridge. On the way, she saw trees that had been through a fire, their trunks and branches bleached white and feather-like.

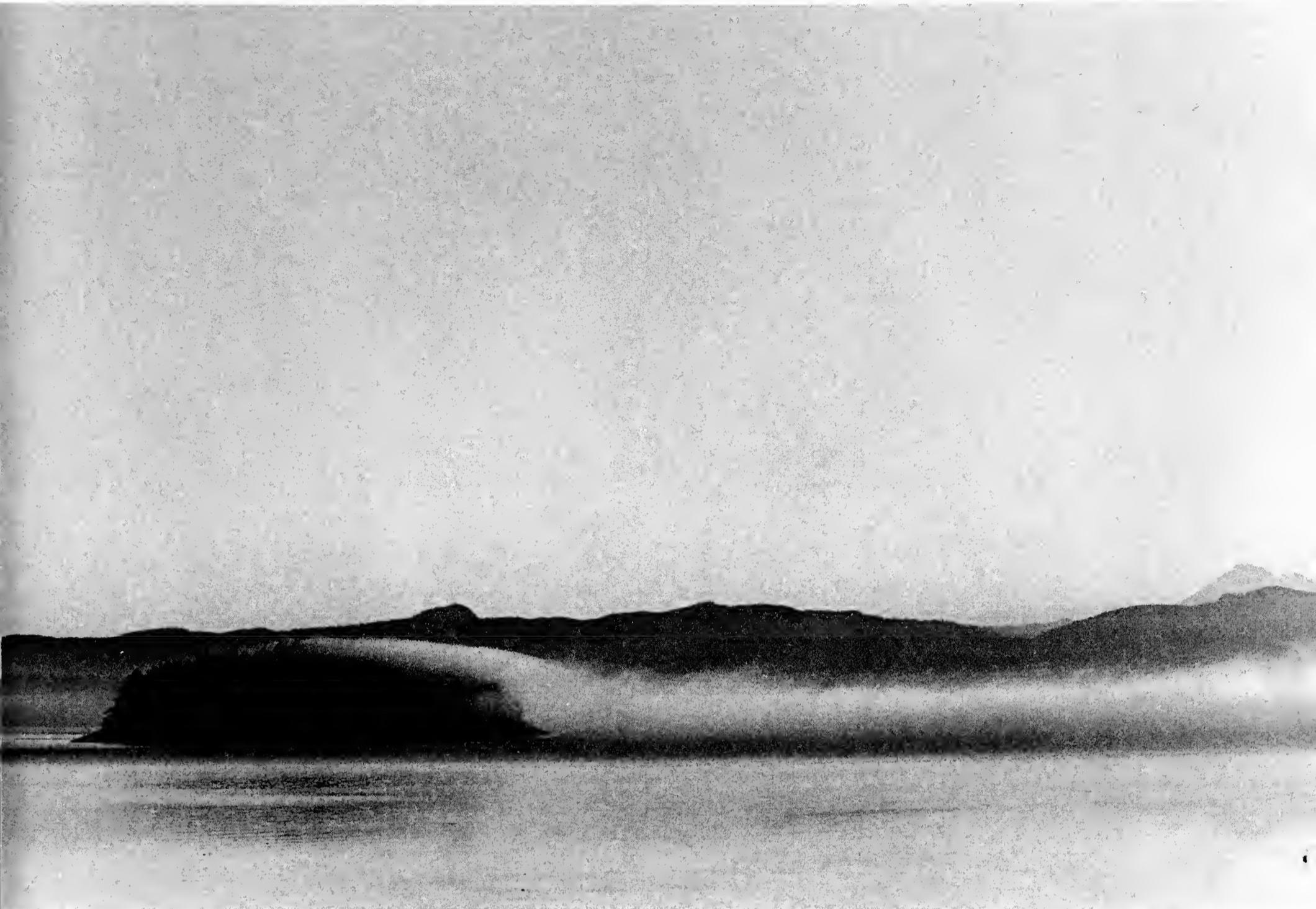
Other scenes that capture Randlett's imagination include cottonwoods in bloom, their “May snow” piling up on the roadsides, and the patterns made by the snow-dusted tips of densely planted young firs and pines reforesting Mount St. Helens. She loves winter landscapes for their stark beauty, and leafless trees that create “a veil to see something beyond.” Randlett feels she knows the Pacific

Northwest coastal areas especially well, as evidenced in many of her photographs that capture the patterns in water caused by wind, ice, currents and tides.

Randlett's landscapes act on the viewer in many ways: We can revel in their sheer beauty; they document a particular place at a particular time, sometimes revealing the effects of human intervention or acts of nature; and they can be read as painterly or sculptural abstractions, revealing patterns of light, shadow and shape. She uses the term “liquid light” (from John Muir) to describe the variability of Northwest light, which passes through water in the atmosphere to give gradations from clear white to pure black. In her poem “Alchemy,” inspired by a Randlett photograph, Denise Levertov uses the phrase “fogmuffled radiance,” her interpretation of this particularly Northwest light that Randlett captures in her work. As Randlett says, she is not interested in sunny days and prefers a misty, veiled light that lends magic to a landscape and fires the imagination.

In some of the landscape photographs, things that are close up and small may seem infinitely vast, while the broader views capture unexpected details and subtleties. An example is *Pond in Morris Graves's Garden, May 1979*, which was shot from the top of a high wall in the artist's garden. (See Page 3.) The stone from which patterned lines of vegetation radiate is actually a meteorite, but its dimensions are hard to grasp. At first glance, its scale seems so large that the surrounding water lilies might almost be giant lotuses. Looking closely, there is a reflection of clouds in many greys, and the outline of a tree. Once the water reveals the sky, it seems possible that one of the brighter leaves in the pond might be the mirror of an occluded sun.

River's Edge, February 1991 is full of mystery. (See Page 4.) In the midst of the water's ripples, there is a vein of darkness that could be a reflection. Running from corner to corner of the composition is a light-bejeweled



hem demarcating the glassy dark water from what might be sand but could also be newly forming ice. What is the light's source? Are we near the edge or looking at it from a great height? This puzzling quality only deepens the photograph's beauty.

Winter, Bloedel Reserve, Bainbridge Island, January 1992 teases the brain with topsy-turvy possibilities. (See Page 5.) I can only guess that nearby branches curve and touch the pond's frozen surface in the top half of the image, while the fluid water beneath holds a reflection of trees farther in the distance, though the branch ends appear trapped beneath the ice. Mary says she herself had difficulty recognizing which way was up when printing both this image and *Flooded Field, November 2006*.

When is an island a whirr of locomotion? In *Jack Island, April 1990*, Randlett tells me that the shape of the land mass and the wild movement of mist or fog around it remind her of the Kalakala—the retired art deco ferry—steaming ahead. (See above.) Compare the liveliness of this image to *Stillness, View from Guemes Island, April 1990*, taken in the same spot with a slightly rightward focus: A heron and its barely quivering reflection are the tiny stitch holding together the island, the mist and the sky. (See Page 8.) Randlett possesses an uncanny ability to perceive the one detail that unifies a composition and sets the mood. In her visual language, birds represent nature's awesome power. Their presence in the landscape predates and will outlast us, and

ABOVE: *Jack Island, April 1990*





they inhabit it in ways we cannot. (Although the perspective in some of Randlett's work might seem to convey a bird's eye view.)

When is a clearcut a thing of beautiful devastation? Can a bare tree mirrored in floodwaters be a paean and a warning at the same time? In one of her favorite photographs, *Coastal Clearcut, January 2002*, Randlett says she felt the image resonated with the paintings of Emily Carr, whose work is imbued with her deeply spiritual connection to nature, particularly trees. (See above.) So intensely did she identify with trees that she once described herself as "exposed to all the ill winds, like a lone old tree with no others 'round to strengthen it against the buffets, with no waving branches to help keep time." Carr was outspoken in her opposition to wanton logging of old growth forest: Her painting *Scorned as Timber, Beloved of the Sky* (1935) shows a lone

and nearly branchless tree amid stumps, silhouetted against an immense cloud textured in shades of grey and white—an image echoed in Randlett's photograph.

Like *Coastal Clearcut* (one of many photographs Randlett has taken of clearcuts), *Flooded Field, November 2006* has a spectral beauty. (See Page 10.) A bare tree reflected in floodwaters seems impossibly tall and imposing in the flat, empty landscape. Still, its bare branches call to mind the delicate venation of a skeletonized leaf. Whatever work human hands may have done in this field is buried, and the tree stands like a sentinel, a witness. What makes this and the clearcut photographs iconic Northwest images is not only the subtle quality of light but the stories they tell of encounters between people and the natural world they inhabit and, in some cases, exploit. Randlett's work does not have an overt or

LEFT: *Stillness, View from Guemes Island, April 1990*

ABOVE: *Coastal Clearcut, January 2002*



ABOVE: Flooded Field, November 2006

RIGHT: Emerging City, Seattle, March 1993



explicit environmental or political agenda, but in images such as these, thoughts of our own contributions to the devastation are inescapable.

People are seldom physically present in Randlett's landscapes, even if their handiwork is evident in the fields of ragged stumps and wraith-like surviving trees. In *Emerging City, Seattle, March 1993*, a rare cityscape (the only one included in the University of Washington Press book), Randlett puts the human presence in its place. (See above.) Seen from Puget Sound, the city is merely a vague shadow among the lowering charcoal and dust-white clouds; it might as easily be a distant rock formation as a crowded horizon filled with hubris-laden skyscrapers.

Randlett's body of work offers viewers both pleasure and perspective. She describes



going up to a forest observation tower on a cold, grey, fogged-in day and overhearing the only other visitors pronounce, "There's nothing to see here," leaving her once again alone to do her work. But anyone who spends time with her images of the Northwest landscape will learn new ways of perceiving what previously seemed merely grey and forbidding, cloudy and damp, or stark and devastated. As I step outside now, I find Mary Randlett has given me "an eye to see" the landscape in a new and subtle light. ~

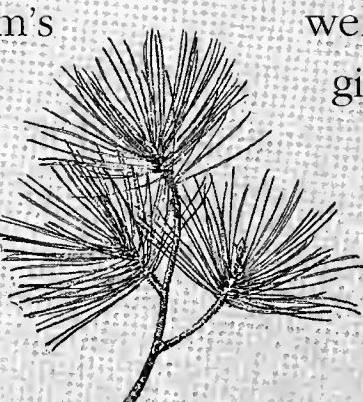
REBECCA ALEXANDER has an MFA in painting and is the Plant Answer Line librarian at the Elisabeth C. Miller Library, University of Washington Botanic Gardens.

THE PINETUM: A Place for Conifers



BY JANINE ANDERSON

Washington Park Arboretum's Pinetum contains a vast array of conifers that vary widely in size, form, cone, color and texture. Included in the collection are plants whose common names we know



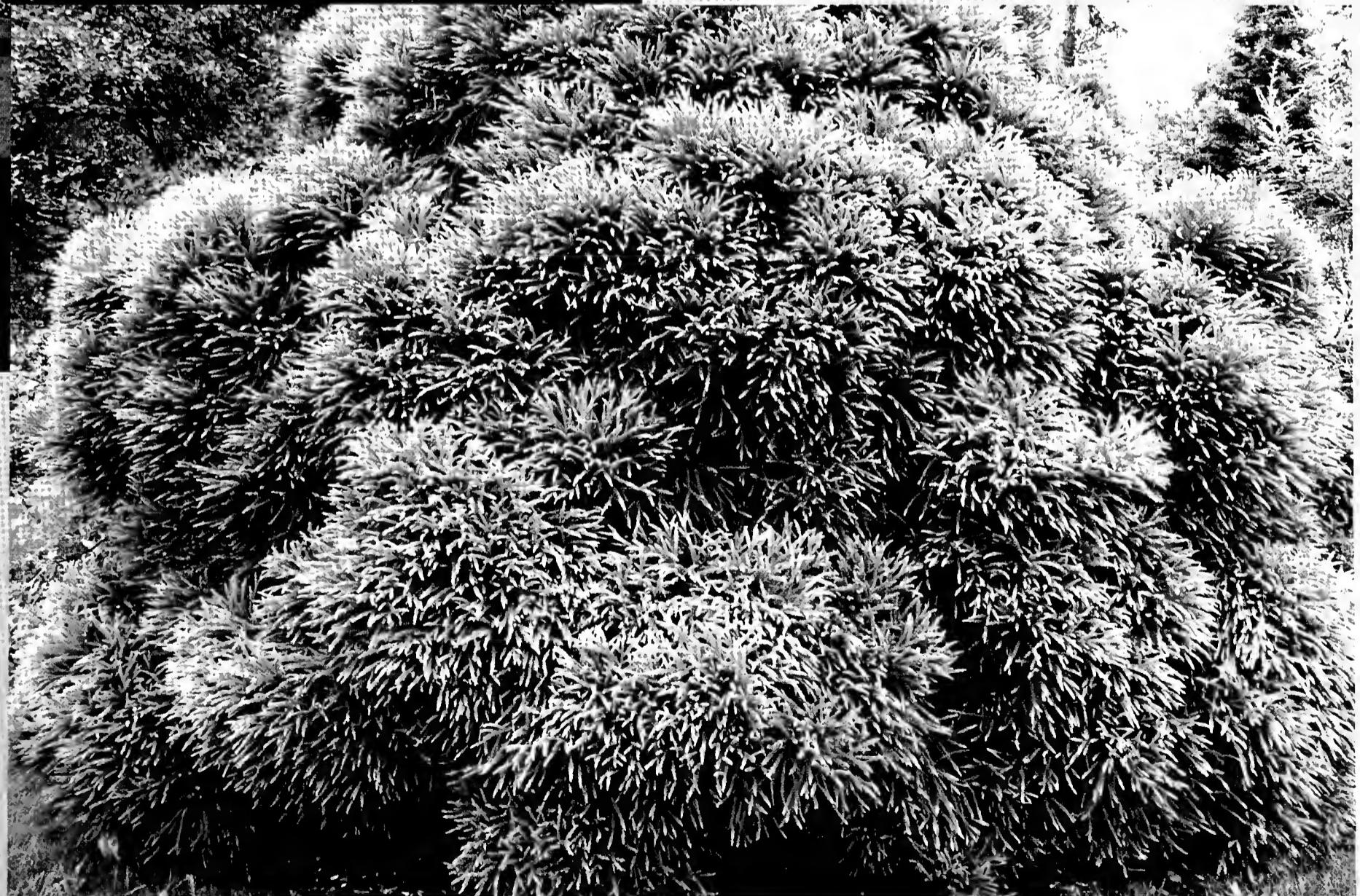
well, such as spruce, fir, cedar, pine, ginkgo, redwood and hemlock. Other conifers in the Pinetum, including *Keteleeria evelyniana*, *Fitzroya cupressoides* (Patagonian cypress) and *Taiwania cryptomerioides*

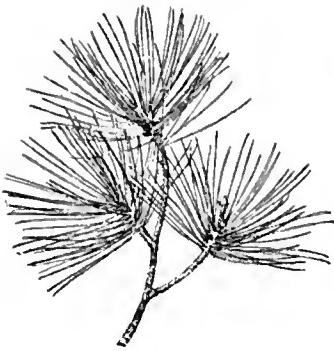
ABOVE: Washington Park Arboretum's Pinetum. (Photograph by Alan Bollen.)



ABOVE: *Ginkgo biloba*.
(Photograph by Janine Anderson.)

BELLOW: *Cryptomeria japonica 'Nana'*.
(Photograph by Janine Anderson.)





(Taiwan coffin tree), are largely unknown outside of arboreta and their often-limited native ranges.

Located in the westernmost part of the Arboretum, the Pinetum begins at the intersection of Lake Washington Boulevard and 26th Avenue East and continues south along the west side of Lake Washington Boulevard almost to Boyer Avenue East. From the Graham Visitor Center, the Pinetum can be reached by the Lynn Street footbridge.

History of the Pinetum

The Pinetum took shape in the late 1940s and early 1950s under the influence of former Arboretum director Brian Mulligan. In the 1960s, the northern section of today's Pinetum was a construction site prior to its intended incorporation into the R. H. Thompson Expressway, which was to connect SR 520 to Interstate 90. The area, referred to as "the pit," was a wasteland for over a decade. After the highway extension project was abandoned in 1972, the area became, in turn, a dirt bike path, a planting ground on Earth Day, and a p-patch. In the early 1980s, as part of a master plan update, the pit was filled, contoured into rolling terrain, and renamed the Conifer Meadow. The initial planting there included many conifers from the Arboretum's nursery.

Noteworthy Specimens

FAMILIAR CONIFERS

Among the conifers in the Pinetum are specimens of our common, native Douglas fir (*Pseudotsuga menziesii*). Douglas fir is logged and replanted extensively throughout the Pacific Northwest, and its lumber is used widely as a building material. Forests of old-growth Douglas fir provide habitat for the threatened Northern spotted owl; a single pair of these owls requires 2000 to 5000 acres of undisturbed forest, and they do not like to cross harvested land. Maintenance of suitable habitat for these birds has caused a decades-

long conflict between environmentalists and the timber industry. At least one Douglas fir located near Lake Washington Boulevard in the northeastern section of the Pinetum existed before the Arboretum was established and probably predates the clear-cutting of the area that took place in 1899-1900.

UNUSUAL CONIFERS

There are many reasons why a particular tree or collection is valuable. The Taiwan Douglas fir (*Pseudotsuga wilsoniana*) is treasured for its rarity. Worldwide, there are only eight species in the genus *Pseudotsuga*—three in North America and five in Asia. The Taiwan Douglas fir is native to Taiwan, where it forms forests. Like our native Douglas fir, mature specimens of Taiwan Douglas fir have thick, deeply fissured bark. Unlike true firs (of the genus *Abies*), which have upright female cones that are usually located at the top of the tree, the abundant female cones on the Douglas fir hang down from the branches. An Arboretum specimen of Taiwan Douglas fir is still quite small, having been planted out only recently from seed collected in the wild in China.

Keteleeria evelyniana is rare in cultivation. It is a member of the pine family (which also includes firs, true cedars, spruces, pines and larches); is native to moist and dry evergreen forests of southern China, Laos and Vietnam; and is usually found at elevations between 3000 and 6000 feet. Scientists believe the tree can live up to 600 years. Although a mature Keteleeria can reach 100 feet tall and seven feet in diameter, our young Arboretum specimen with its long, narrow, pointed needles is still quite small.

Some pines in the Pinetum have a very limited native range. These include the Coulter pine (*Pinus coulteri*), native to California and northern Mexico. Coulter pines are called "widow makers" because their giant, spiny cones weigh four to 10 pounds when fresh—the heaviest cones of any pine tree. Chinese white pine (*Pinus armandii*), which is native

to China, has long, fine, soft needles bundled in groups of five. (The presence of needles grouped in bundles of five distinguishes white pines from other pines, which usually have needles held together in groups of two or three.) Siberian pine (*Pinus sibirica*) is native to the arid regions of eastern Russia; also a white pine, its cones bear edible seeds, or nuts, that are harvested and sold. Siberian pine is often considered a variety of the better known Swiss stone pine (*Pinus cembra*), whose native range is in the mountains of Europe and parts of Asia. Another white pine, Taiwan white pine (*Pinus morrisonicola*), is found on Taiwan, usually at altitudes of 1,000 to 7,500 feet; occasionally it is found at lower levels and is most prevalent in areas that are difficult to reach.

ENDANGERED CONIFERS

Worldwide, many conifers are endangered because they have been harvested for timber or their ecological ranges are restricted—sometimes to a single mountaintop. The World Conservation Union publishes a Red List that catalogs and highlights species that face a high risk of global extinction. By planting endangered conifers on the list, the Arboretum fulfills its mission to conserve important species for the future.

The Maidenhair tree (*Ginkgo biloba*), the only species in its genus, is grouped with conifers, even though it has fan-shaped leaves with delicate, branching veins not seen in true conifers. The native range of the red-listed *Ginkgo* is limited to a small area in eastern China. Among the most ancient of plants, the *Ginkgo* is believed to be 270 million years old. Fossil remains are found worldwide, including in the Ginkgo Petrified Forest State Park in

**"By planting
endangered conifers
. . . the Arboretum
fulfills its mission
to conserve
important species
for the future."**

central Washington, near the town of Vantage.

Cunninghamia konishii is a member of the cypress family, which also includes juniper, redwood and the Western red cedar, a Northwest native. *Cunninghamia konishii* is considered vulnerable to extinction within the medium-term future in Taiwan and elsewhere in Southeast Asia. Its native population has been reduced by at least 80 percent over the last three generations, owing to logging; often used

in house construction, its wood is easily worked and resistant to rot and termites. *Cunninghamia konishii* is similar to, but has shorter needles than, the better known China fir (*Cunninghamia lanceolata*), a close relative that is not considered endangered.

Although scientists previously had considered it extinct for 20 million years, living specimens of the Dawn redwood (*Metasequoia glyptostroboides*) were found in China in 1945. By 1948, it was being planted in arboreta throughout the world. In the Pinetum, Dawn redwoods are grouped, with other water-loving deciduous conifers such as the larch and the Swamp cypress, in the lowlands near Arboretum Creek and Lake Washington Boulevard. The Dawn redwood is critically endangered in its native region in China. It is estimated that no endemic subpopulation of Dawn redwoods contains more than 50 mature individuals!

The Coast redwood (*Sequoia sempervirens*), an iconic giant found in a narrow coastal belt in Northern California and Southern Oregon, is considered vulnerable to extinction in the wild, with a population reduction of greater than 30 percent within the past three generations. A specimen of the Coast redwood was

continues on page 28



Mosses: A Brief Introduction— And a Tour of Some Arboretum Species

BY DAN PAQUETTE

PHOTOS BY RICHARD DROKER

A child or a poet might perceive mosses as thin green strips gluing together sidewalk slabs, or as furry coats comforting tree trunks. Ecologists might focus their attention on the role of mosses in the production of oxygen or the retention of large amounts of carbon in peat bogs. A taxonomist might be interested in diversity, wondering how many of the world's currently recognized 12,800 moss species are found in the Pacific Northwest, while gardeners might be searching for moss species that can be used as lawn replacements. Like a beetle foraging through moss, I will ramble—and perhaps stumble—through these different perspectives.

Origins and Characteristics

Evidence suggests that mosses descended from green algae some 350 to 400 million years ago. Unlike later-evolving plants, mosses do not have vascular tissues, such as xylem and

phloem, to enable the transport of water, minerals and organic molecules throughout the body of the plant—nor do they manufacture lignin, which provides a stiff structural component for these transport systems. Instead, some mosses have transport systems based on a variety of specialized cells, while other mosses rely principally on diffusion and osmosis.

Like other plants, mosses can reproduce in a number of ways, and their gender is determined by their reproductive gear. Also like other plants, mosses need nitrogen,

which they often obtain from decaying leaf litter or from a symbiotic relationship formed with *Nostoc*, a cyanobacteria. (Cyanobacteria are microscopic organisms at least two billion years old that are capable of nitrogen-fixing and oxygen production. About 54 species are currently recognized.)

Like ferns, each generation of moss “alters,” a process in which certain characteristics skip a generation. Drawing 1 (see Page 18)



ABOVE: A frog under observation by a colony of *Hylocomium splendens*, commonly called Stair-step moss.

LEFT TOP: *Homalothecium fulgescens*

LEFT BOTTOM: A mixture of *Homalothecium fulgescens* and *Scleropodium cespitans*.

Glossary of Terms

Calyptra: A hairy or membranous cap torn away from the archegonium, which provides temporary protection for the sporophyte.

Capsule: The vessel holding the spores.

Foot: Located at the bottom of the seta, it allows the passage of nutrients from the gametophyte to the sporophyte.

Gametophyte: In the case of mosses, a plant beginning as a haploid spore that eventually grows into a leafy plant with rhizoids.

Lateral bud: The beginning of a branch formed on the side of a stem.

Operculum: A lid that covers the peristome and capsule mouth.

Peristome: An arrangement of membranous teeth that serve to facilitate spore dispersal.

Rhizoid: Filaments that serve to anchor the gametophyte to the substrate.

Seta: The stalk of the moss sporophyte holding the capsule. The seta elongates as the sporophyte develops.

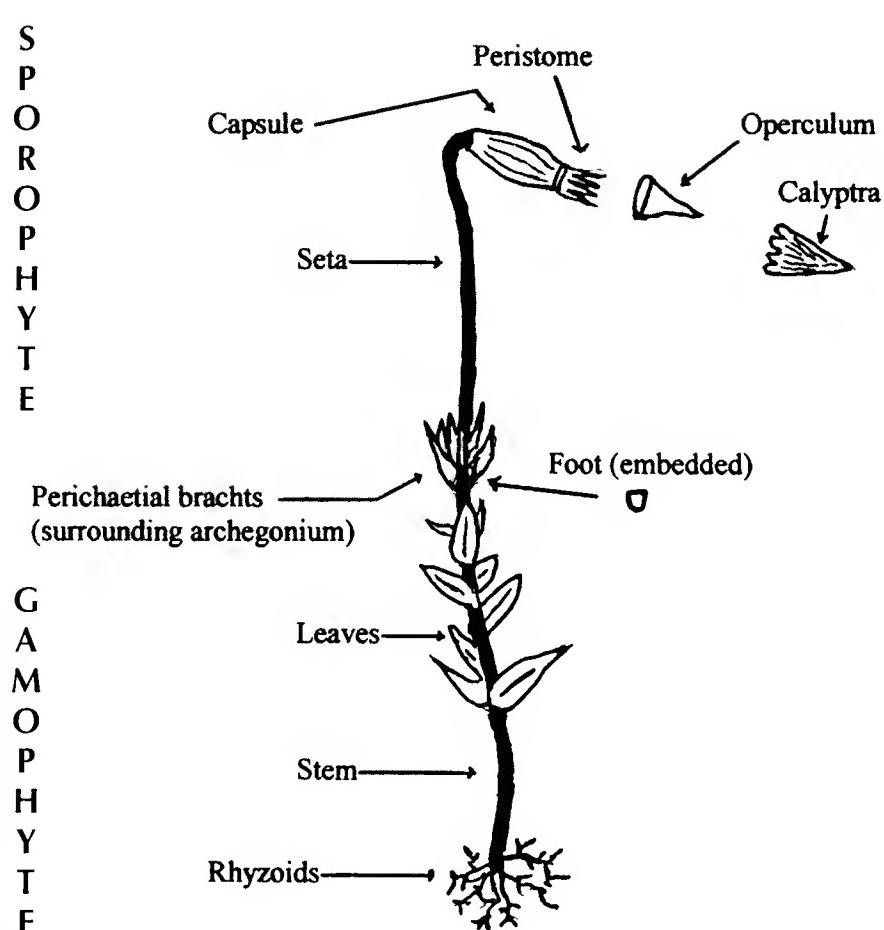
Spores: Usually a microscopic haploid cell produced by the sporophyte via meiosis and subsequent cell division.

Sporophyte: The generation that produces moss-producing spores. Sporophytes typically begin when male sperm impregnate an egg in the gametophyte female plant's archegonium.

Terminus: The end of a branch or stem (farthest away from the rhizoids).

illustrates the parts of a "parent" moss and its "child." The parent, termed a *gametophyte*, is shown in the lower portion of the drawing; it includes *rhizoids*, a stem, leaves and hidden reproductive tissues, termed the archegonium. The child, termed a *sporophyte*, consists of the following parts: the *foot*, *seta*, *capsule*, *peristome* and *operculum*. The sporophyte results from the fertilization of the egg in the gametophytic female's archegonium via sperm from a male plant (not shown). The sporophyte's capsule contains spores that, when blown away by the wind, settle and become the next generation of moss—a generation that will resemble, in maturity, its leafy-stemmed gametophyte "grandparent."

Most mosses can be divided into two large groups called "acrocars" and "pleurocarps." As Drawing 2 (see Page 19) shows, an acrocarpous moss tends to grow upright and display very little branching, and its sporophyte usually grows from the terminus of a stem. Sometimes these mosses form a *lateral bud* near the *terminus* that allows the stem to grow upward beyond the reproductive gear at the first terminus.



Drawing 1: Readily visible parts of a female moss plant showing both gametophyte and sporophyte generations.



Acrocarp



Pleurocarp
on tree limb

Drawing 2: Acrocarps grow upright; pleurocarps grow prostrate and their female reproductive structures grow from modified brances.

Pleurocarpous mosses grow horizontally, tend to have regular to irregular branching, and their sporophytes form from modified branches. Pleurocarps appear much later in the fossil record than do acrocarps; molecular studies and some fossil discoveries place their origins in the Jurassic period around 194-160 million years ago.

Mosses can be tiny; some have leaves less than a millimeter in length. In order to see the leaves clearly, use of a 10-16X doublet loupe magnifier or a dissecting microscope is recommended. For \$60 or \$70 one can purchase a twenty-power dissecting microscope that can be used, with a gooseneck lamp as a light source, to begin learning about the very rich world of life just beyond our normal visual limitations. One can use such a microscope to identify a large number of mosses to the genus level and occasionally to the species level; it also enables viewers to have a panoramic view of a specimen in its natural surroundings. For more serious work, the greater magnifying power of a compound microscope is needed.

Grow your own

One way to acquire moss for your own home is to participate in salvage events sponsored by King County. (For more information, visit <http://dnr.metrokc.gov/wlr/mailing.htm> or call Greg Rabourn at 206 296-1923.) After salvaging plants for a few hours for the county, you are then allowed to salvage for your own needs. I usually collect a few mossy logs or portions

of stumps, which then become part of my yard. I try to place the transplanted logs and mosses in spots that replicate the shade conditions in which they originally were found; in summer, I try to mist the mosses daily if they were found in forest settings, so as to replicate the conditions of humidity present in their original sites.

Recommended Resources

For your first field guides to mosses, I recommend both of the following: the moss section in Jim Pojar's and Andy Mackinnon's "Plants of the Pacific Northwest Coast" (Edmonton: Lone Pine International Publishing, 2004) and W.B. Schofield's "Some Common Mosses of British Columbia" (Victoria: Sutton, 1969).

For moss gardening, George Schenk's "Moss Gardening" (Portland: Timber Press, 1997) describes a number of ways to start and maintain mosses in your yard.

See Arthur Lee Jacobson's "The Cryptogamic Carpet—Mosses in Seattle" in the Spring 1982 "Bulletin" for informative line drawings and a list of 103 moss species found within the Seattle city limits.

In addition, the University of Washington Herbarium has approximately 504 mosses that have been collected within Washington State. Note: the Herbarium is open to the public but is primarily a research collection. For more information, go to: <http://www.washington.edu/burkemuseum/collections/herbarium/visit.php>.

A Moss Tour

Let's identify a few mosses by touring a small area in the Arboretum, using maps available at the Graham Visitor's Center. Our tour begins across the road from the Center, at Azalea Way. From the entry sign, walk south about 18 paces; on the left is a tree labeled *Prunus subhirtella*. The main trunk of this tree is broken off about five feet from the ground. Our first moss is atop this break and is a pleurocarp called *Homalothecium fulgescens*. This fuzzy-looking moss mingles with its thinner



Syntrichia mingles with an unidentified moss and
two stems of *Scleropodium* in the upper right.



Orthotrichum lyellii. Note the partially immersed capsules.
Sometimes leaves at the tops of stems have clear tips.

cousin *Homalothecium nuttallii*. With a loupe magnifier, you can see that both species have lateral folds in their greenish-golden leaves.

Sixty-three paces farther south on the left side is another *Prunus subhirtella*. On the base of the tree trunk is the pleurocarp *Scleropodium cespitans*. While this moss is yellowish like *Homalothecium*, it has a stringy look because the leaves lie tight against the stem. With a magnifier, spray bottle and the bent end of a paper clip, you should be able to spread the leaves away from the stem and note their characteristic concave and oval shapes. Unlike the long leaves of *Homalothecium*, which gradually narrow to a tip, the leaves of *Scleropodium cespitans* remain concave and wide for much of their length; they only become narrow at the tip. (See Drawing 3, Page 22.)

Don't be surprised to find a little *Homalothecium* mingling with the *Scleropodium*. Many mosses tend to be gregarious,

and some species rub shoulders with each other, as well as with lichens. Both *Scleropodium* and *Homalothecium*, for example, are genera of the Brachytheciaceae family and are sometimes found together.

Epiphytic mosses grow in trees; recent studies support the theory that many mosses that are both epiphytic and pleurocarpous have evolved shorter seta, larger spores and modified peristomes—features that allow the spores to flow out with raindrops during wet weather, rather than being blown by the wind like many of the ground mosses. Think of small boulders (spores) tumbling along in a raging river and then coming to rest downstream—or in the case of the mosses, at an empty crevice on the tree bark or at the edge of the mother moss clump. (Molecular studies in the past decade support the idea that these features have evolved independently in different pleurocarpous moss families, rather than from a common ancestor.) It would

The advertisement features a large black and white photograph of a dense cluster of dark, wavy-leaved plants, possibly a type of fern or large moss, filling the left side of the frame. To the right, there's a smaller photo of two women smiling and hugging. The background is a light-colored banner with text and logos.

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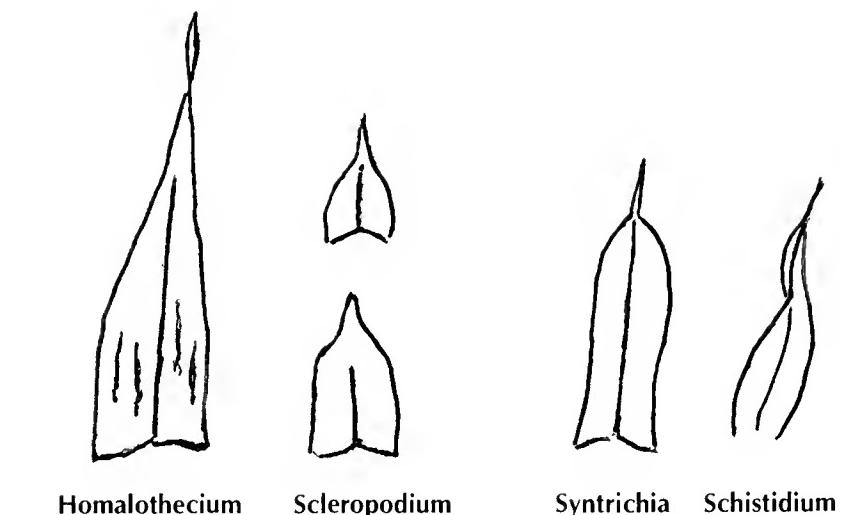
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appear that spores traveling a short distance on trees have a greater chance of survival than do ones that are carried on the wind. There are, however, many epiphytic mosses—such as *Homalothecium* species—that do not exhibit these tendencies. On the other hand, we can see the pressures of the environment encouraging these traits in some epiphytic mosses that are not pleurocarpous, such as the next mosses on our tour.

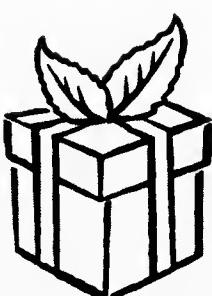
From the second *Prunes subhirtella*, walk another 114 paces south and locate the branches of a *Rhododendron luteum* sited on the left. You will see tufts of an acrocarpous moss called *Orthotrichum lyellii*.

There are roughly 750 species in the Orthotrichaceae family; the most common one found in our area is *Orthotrichum lyellii*. Its lower leaves are usually somewhat pressed against the stem, while the leaves near the top look like little green brushes, hence its common



Drawing 3: Generalized leaf shapes of some moss genera found around the Arboretum.

name, Bottle brush moss. Other *Orthotrichum* species have a similar branched appearance, but *Orthotrichum lyellii* is the largest one. You can tell that a specimen is *O. lyellii* if the following obtain: the stems are sometimes longer than five cm; the leaves are occasionally longer than six mm; the capsules are pale and barely emerge from the leaves; or spindly, bulbous male plants are found in the vicinity.



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Examine the mosses on the footbridge over Lake Washington Boulevard, just a little distance to the west from Azalea Way. Here you will find the acrocarp *Schistidium apocarpum*, with its dark-green, appressed leaves and tiny clear leaf tips. (The leaf texture of this species makes me think of terra cotta or a fiberglass surface.) Nearby, look for the rounded leaf tips with projecting hair points of the acrocarp *Syntrichia princeps* (former name *Tortula princeps*). Other mosses found on the bridge are difficult to identify by eye, even to the genus level; microscopic examination of their cell structures is needed to correctly identify them.

If you decide to pursue your study of mosses, you will become acquainted with such fascinating features as the subtleties in leaf margins (toothed, plain, incurved and recurved)

*Moss capsule wobbles.
Soft wind. One inch womb barrel
high over grandmother.*

—DAN PAQUETTE

and the characteristics of the costa (a structural support in the middle of a leaf that looks like a mid-vein).

To learn more about moss gardening, you might want to visit the Washington Park Japanese Garden. If you arrive in the morning, you may have an opportunity to see the caretakers and docents at work. There are also volunteer opportunities. The Garden's hours vary, so for further information call (206) 684-4725 or visit <http://www.seattle.gov/parks/parkspaces/japanesegarden.htm>. ~

DAN PAQUETTE is a poet and amateur bryologist. He serves on the board of the Seattle chapter of the Washington Native Plant Society and writes a regular column for its monthly newsletter, "Walk of the Month."



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LEFT & ABOVE: *Paxistima myrsinoides*
in closeup and in the author's garden.

Paxistima—A Dry Shade Stunner

STORY AND PHOTOGRAPHS

BY WALT BUBELIS

You don't mind if a plant is elegant, fits into native landscapes, and happens to be tolerant of sun or shade, now do you? And even better—if it thrives in dry shade?

Dry shade—even the thought makes one pause. For those who don't already know about the habits of that garden thug, the Western red cedar, consider the plight of someone who tries to establish new plants under a good-sized specimen. You start digging where you think your new plants will be well sited and look good. Your foot is on the edge of your trusted spade or shovel, you start to dig... and immediately run into roots. Myriads of roots, in all sizes. You start to dig away at the smaller pieces. You shake soil loose from others. To compensate for the now-lower soil level, you add something like a composted mulch. Finally you plant your shade-tolerant treasures and water them in.

You know, of course, to water the new plants often during their first growing season. But if you plant under a Western red cedar, you will find yourself still watering regularly into the third or fifth year. Because during those years, cedar roots will have re-invaded your carefully prepared site with a vengeance, and they are continuously drawing away moisture. You could re-cut the cedar roots at intervals, or you could keep watering both your new plants and the cedar for a long time, until they reach an accommodation.

Or you could start with a plant that can compete with the cedar roots from the start, namely Oregon boxwood (*Paxistima myrsinoides*, also termed *P. myrsinifolia*). It doesn't need shade to survive and is quite tolerant of conditions that tax other plants. I've seen lush

examples in full sun in the Tumwater Canyon of central Washington, as well as on fully exposed talus slopes on Mt. Rainier and in the Olympic Mountains. It is also found in locales with dappled sunlight throughout Western Washington and Oregon. This adaptability to different light conditions extends to its moisture needs, thus making it a candidate for dry shade. I've grown Oregon boxwood under a large Western red cedar for years, so I can testify that it does well even in such a difficult location. Where it grows in shade, it opens up but still presents itself as an elegant plant.

For those desiring a native theme in their garden, *Paxistima myrsinoides* can add a bit of mystery because it is not immediately identifiable. It has a passing resemblance to such plants as Privet honeysuckle (*Lonicera pileata*) and dwarf cultivars of Japanese holly, such as *Ilex crenata* 'Helleri.' Oregon boxwood has quiet features that allow it to blend into many landscapes.

What does it go with? In the wild, it is found associated with a wide-ranging set of woody and herbaceous plants. Trees include *Pseudotsuga menziesii* (Douglas fir), *Tsuga heterophylla* (Western hemlock), *Pinus ponderosa*, *Abies lasiocarpa* (Sub-alpine fir), *Taxus brevifolia* (Western yew) and *Cornus nuttallii* (Western dogwood). Shrubs include *Symporicarpos mollis* (Creeping snowberry), *Garrya fremontii* (Fremont's silk tassel), *Vaccinium* spp. (Huckleberry) and *Sambucus mexicana* (Blue elderberry). Ornamental herbaceous genera range from grasses and sedges (such as *Festuca*, *Agrostis*, *Elymus* and *Carex*); to Alum root (*Heuchera*), goldenrod (*Solidago*), yarrow (*Achillea*), harebells (*Campanula*), stonecrops (*Sedum*), larkspurs (*Delphinium*),

spreading phlox (*Phlox diffusa*) and fairy bells (*Disporum*); to various ferns. With a list like this, one sees that unaggressive *Paxistima* can be used as a low shrub fronting taller shrubs and trees, as a mixer with smaller shrubs and perennials, or by itself as a groundcover.

Close inspection will reveal some of Oregon boxwood's distinguishing characteristics. Leaves that are small, evergreen, serrated (toothed) and elongated sit oppositely on the stems of a multi-stemmed shrub that ranges from one foot to three feet high and as wide. Flowers are small, either solitary or in small cymes, and have maroon petals; they bloom in the spring—typically May. Fruit consists of a small capsule.

Paxistima myrsinoides ranges in the wild from southern British Columbia and southwest Alberta southward through both the Rocky Mountains and the Cascades. In the north it appears at higher elevations; it is found at sea level west of the Coast Range and southward into California. As a measure of its wide adaptability, it is found throughout the Rockies all the way into Arizona and New Mexico. As a climax shrub it usually indicates dry to moist, cool sites and well-drained soils.

With this wide-ranging habitat, it's no wonder that many Native American groups throughout the region used it. The Thompson Indians of British Columbia made a decoction or infusion of Oregon boxwood for internal ailments and to set broken bones; a poultice of boiled leaves was applied to swellings and body aches. The Colville/Okanagan tribe of Eastern Washington/south-central British Columbia made a decoction of branches that was taken internally for kidney troubles. The Navajo of the Southwest used it as an emetic in various ceremonies. In times of stress, it was also fed to livestock throughout the West. Deer, elk and moose typically forage on it, as do mountain sheep and grouse.

Oregon (western) boxwood was named *Ilex myrsinoides* Pursh in 1814; it was renamed *Paxistima myrsinoides* in 1838. The western

plant came into cultivation long before its eastern counterpart, *Paxistima canbyi*. The eastern plant was not even identified in the wild until 1873—perhaps because it is quite sparse in the landscape. The eastern plant is found in the central Appalachian Mountains from Pennsylvania, Virginia, West Virginia, Tennessee and North Carolina, with tiny outliers in Ohio and Kentucky. Today it is listed as threatened or endangered by the U.S. federal government and some states.

Usually called Canby's Mountain Lover, *Paxistima canbyi* also is known as Rat Stripper. Currently the latter name is listed in U.S. and European reference sources without explanation of its origins. But Douglas Ogle, a retired biology teacher and naturalist who lives in Virginia, has confirmed to me in recent correspondence that the name derives from the habit that native wood rats (*Neotoma magister*) have of stripping the plant's leaves to line their nests. Whichever common name it goes by, this plant is a fine garden groundcover. It shares many features with its western counterpart, but has smaller leaves and a prostrate habit, never getting above a foot in height and up to five feet in spread. There are remarkable, ancient specimens in the Southeast that have spread over hundreds of acres; Douglas Ogle has noted such extensive displays in western Virginia.

Paxistima canbyi prefers a light, dappled shade and moist but well-drained soils; I have grown it successfully under a Western red cedar, along with *Paxistima myrsinoides*. Due to its eastern origins, it is tolerant of alkaline soils but also will do well in our Puget Sound acidic soils. It wouldn't resent being placed close to sites such as foundations or driveways that leak calcium.

The renowned horticulturalist and author Michael Dirr says of *Paxistima canbyi*: "Good evergreen ground cover which once established requires little or no attention: excellent when used in combination with broadleaf evergreens; makes a good facer plant or low



Mr. Parker, guardian spirit of the Bubelis garden, examines a specimen of *Paxistima myrsinoides*.

hedge." Pacific Northwest-based botanist C. Leo Hitchcock had this to say about *Paxistima myrsinoides*: "This is surely one of the finest low-growing shrubs in the Northwest, readily adaptable to shady or open, well-drained sites, graceful when growing untouched, but readily shaped into a low hedge. Although the flowers are somewhat inconspicuous, nevertheless they have real beauty, but it is because of the handsome, glossy evergreen leaves that the plant is rated so highly."

One last note: Both species are practically problem free. A *Euonymus* scale is the only pest I have occasionally noticed; soapy water sprays discourage it. To find either plant, you'll have to do some searching, however, since they are not commonly offered in the trade. Both are worthy of consideration in your garden. ~

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WALT BABELIS is chairman of the Horticulture program at Edmonds Community College and is a member of the "Bulletin" editorial board.

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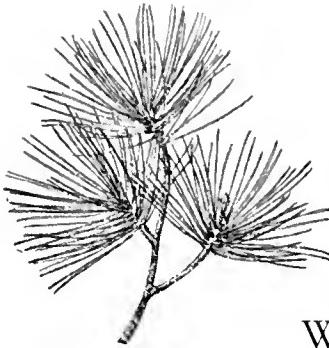
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The Pinetum: A Place for Conifers *continued from page 15*

planted in the Pinetum in 2003 in honor of former Washington State governor Dan Evans. It is the progeny of our state's largest redwood, which has a trunk circumference of nearly 20 feet and is over 140 feet tall. Governor Evans was responsible for preserving the Washington State Champion Redwood, which now resides in a small city park in Olympia, the Daniel J. Evans Park.

Value of Pinetum for Gardeners and Wildlife

Gardeners interested in creating a tapestry of texture, color and form will find inspiration in the Pinetum. The Elisabeth C. Miller Botanical Garden's Great Plant Picks website (<http://www.greatplantpicks.org/>) recommends many conifers found in the Pinetum. Examples include mature specimens of Japanese umbrella pine (*Sciadopitys verticillata*) and *Cryptomeria japonica* 'Nana,' a cultivar of a Japanese timber tree that charms with its cloudlike puffs of foliage.

The Pinetum is one of the "birdier" areas in the Arboretum because the conifers provide food, shelter and nest sites for many species of birds; insects and mammals also find it attractive for the same features. Some birds—such as juncos, pine siskins, nuthatches, chickadees, grosbeaks and crossbills—eat the seeds. Others, such as woodpeckers, forage on insects in both live and dead trees. Cavity-nesting birds and other wildlife nest and roost in tree cavities. Juniper berries are eaten by some birds, such as jays. Squirrels tear off fibrous strips of Western red cedar bark and use it for nest material. The foliage is used as a larval host by some types of butterflies and moths.

Challenges

The Pinetum currently is undergoing a renovation that began more than 10 years ago; it includes assessment, removal and replacement of many poorly performing conifer specimens.

Because of its former uses as a construction site, logging area and dirt bike run, it is not surprising that the Pinetum's soil is less than ideal. In the northern area of the Pinetum it is compacted, heavy clay; in the southern part of the Pinetum, it is an imported fill that creates an artificial, unhealthy soil profile. Many conifers do best in well-drained soil—and some treasured Pinetum specimens have not fared well.

Stressed plants are more vulnerable to opportunistic infections and insects. Bark beetles and wood wasps attack weakened conifers, sometimes with ensuing secondary infections. While these problems are not unique to the Pinetum, the poor soil conditions there increase their prevalence. An effort is being made to improve its cultural conditions through application of compost, appropriate irrigation and air spading, which uses high volumes of compressed air to remove and break up soil—even compacted clay—without damaging roots.

The Lacebark pine (*Pinus bungeana*), a classic of Chinese gardens, arguably has the most beautiful bark of all pines. Unfortunately, disease has devastated the larger Pinetum specimens, and they have been removed and replaced with new trees. It is hoped that improved cultural conditions will enable this pine—which prefers hotter summers and colder winters than afforded by our maritime climate—to succeed.

Future of the Pinetum

The Portico Group, a Seattle-based landscape architecture firm, has created a plan to better showcase the Pinetum's conifer collections. A major goal of the renovation is to eliminate the distinction between the northern and southern sections of the Pinetum. (The current division is artificial, having no taxonomic, eco-geographic or functional foundation—the three criteria by which plants traditionally are

grouped in the Arboretum.) To this end, the recently reconfigured Redwood Trail now loops through major features of the southern section—including stands of large pines, Cypress Hill, and collections of spruces. In the future, the path that connects the current playground area to the Lynn Street footbridge—now a straight, utilitarian feature that essentially cuts the Pinetum in two—will be reworked into a serpentine path that allows for a leisurely exploration of the northern section collections. As a result, future visitors should experience the Pinetum as a fully integrated space.

Eventually, the children's playground adjacent to 26th Avenue East and East Lynn Street will be redeveloped as a children's arboretum at another site in the Pinetum; this feature will introduce younger visitors to the Arboretum and the world of plants. An entry portal to the Arboretum will be constructed in place of the current playground in order to formally define the Arboretum's western edge. Other plans for renovations include threading a collection of one or two broadleaf genera through the conifers, and integrating smaller conifer varieties into the current collections.

The Arboretum master plan calls for the eventual daylighting of Arboretum Creek, which runs along Lake Washington Boulevard in the easternmost portion of the Pinetum; such a change would open up the channel to migrating salmon. Native plants would be planted along the banks of the creek. Currently, it is unlikely that the Pinetum will be affected by expansion of the SR 520 bridge. Keep your fingers crossed and your interest level raised so that this amazing collection of conifers will not only be preserved but will thrive! ~

JANINE ANDERSON, CPH, is a landscape designer (www.anderson-design.net), long-time Arboretum guide and member of the "Bulletin" editorial board.



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Practical Guidance for Maintaining a Garden

BY TRACY MEHLIN

I first became interested in gardening as a child through my fascination with annual flowers such as portulaca and marigolds. During my college years I lived in rental houses, where I learned about herbs and vegetables. Now, as a homeowner, I must employ strict discipline to avoid filling every inch of the garden with my favorite new plants: trees and shrubs. I started with a garden that had ratty lawns and blight patches; after seven years of planting, I find myself with a complex garden and a very long maintenance chore list. Now I spend my evening stroll through the garden wondering how to simplify. Which plants are not worth their upkeep and must go?

Desiring to reduce the maintenance burden, I made a survey of books that discuss general maintenance and also give overall introductions to the various techniques necessary to keep a garden looking good. As I was reviewing the books, I looked for the answers to a few specific questions I had this season:

- What's the best way to keep my peony flowers from flopping onto the ground?
- How can I avoid the "legginess" that develops in my beautiful heath?
- My corn hardly grew this year and produced only little ears. Was it the weather or the growing conditions?
- How can I renovate my garden for easier maintenance?

Learning How to Garden

England is well known for producing celebrity gardeners who are eager to educate the masses.

"How to be a Gardener" is a fine example of the genre. Author Alan Titchmarsh is a famous British TV and magazine gardener, and a prolific fiction writer. The book is meant to be a companion to a British TV show of the same name but easily stands alone as an introduction to gardening. "How To Be a Gardener" displays glossy photos throughout its 570 pages and is divided into two parts: "Gardening Basics and Maintenance" and "Garden Design and Themes." Its attractive design resembles a modern magazine, with "how-to" instructions and factoids or tips in pastel-shaded sidebars sprinkled throughout the pages.

The scope of the book is very wide, but no subject is discussed in depth. This approach is perfect for a new gardener because it does not overwhelm; an advanced gardener may prefer to read books that discuss each topic in greater detail. For example, Chapter 10 on vertical gardening has an instructive, 10-page section on hedges. It includes a discussion of 18 types of hedging plants, as well as information on how to plant a hedge, how and when to prune one, types of hedges, and suggested plants for formal, informal and dwarf hedges. Yew, boxwood and beech are traditional favorites, while the fast-growing Leyland cypress is discouraged because it risks getting out of control by growing too large for its space. One interesting suggestion is to stick willow twigs into the ground in a criss-cross shape; the twigs will root to form a leafy hedge in summer and an airy fence in winter. If the experienced gardener does not find this book's discussion on hedges

informative enough, the Miller Library offers approximately 20 books dedicated solely to this topic.

Titchmarsh was a host of UK's *Ground Force*, a TV show in which a team of experts swoops into a disheveled garden and completely remakes it in 48 hours, often using hardscape and paint to liven things up. He occasionally lets a bit of his TV personality slip into his clear, thorough (yet hardly dull) writing style. From Chapter 12, entitled "Beds and Borders":

"Beds and borders are your plant features. For plant enthusiasts, these are the most important part of the garden around which everything else revolves, but in contemporary and low maintenance gardens, they often take second place to hard landscaping (also called 'hardscaping') and bold, architectural features. That may be why some dyed-in-the-wool gardeners have a problem with decking, gravel, and blue paint."

"How To Be a Gardener" answered my questions only in a general sense. For example, Titchmarsh simply advises that peonies must be staked. Peonies are typically staked with a "peony ring" stake, (a mesh ring about 16 inches wide on a stake) through which the plant is meant to grow. The problem is the flowers often grow much taller than the leaves, so supporting stems discreetly at leaf height will not prevent tall flowers from flopping right over in the rain. Must each flower stem be individually supported well above the leaves? Evidently, yes, but personal experience taught me this lesson rather than the general instruction in "How To Be a Gardener."

More Expertise from England

A more studious approach to horticultural education is employed in "Essential Garden Maintenance Workbook," which could have the subtitle "Gardening 101—The British Method." The author, Rosemary Alexander, is founder

and principal of the English Gardening School, a formal educational organization. (For more details, see: <http://www.englishgardeningschool.co.uk/about.asp>) This 384-page, five-chapter book also includes recommended reading and a calendar of maintenance regimes. Color photographs are concentrated at the end of each chapter, but detailed line drawings illustrate examples throughout the text.

Alexander removes the fear and mystery from garden renovation by taking a systematic and professional approach to the processes of evaluation, planning and implementation. In the first two chapters, the author uses the example of an overgrown, neglected garden to lead the reader through two major steps: first, taking an inventory of plants and features that currently exist, including making a rough map of the property; and second, evaluating the current plantings, the lawn, pathways and the general design. What must go, what should stay, what needs rejuvenation? Once a full

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evaluation is completed—and only then—the reader may select from new woody and herbaceous plants discussed in chapters three and four respectively.

Each of the book's chapters ends with a project to give the reader hands-on experience with concepts introduced in the text. If each project were to be fully completed, the reader would have a personalized reference book of garden plans, maintenance schedules and plant descriptions. A disciplined person who wants a plan to execute from start to finish would find this book very helpful.

The last chapter, "Caring for Plants," intermingles botany with maintenance lessons, giving, for example, the scientific reasons behind why a plant should or should not be pruned or staked. Other discussions in the book also intertwine the science of horticulture with the principles of design.

The author devotes many pages to the theories behind how decisions should be made in garden design. From Chapter Three, "Planning New Plantings: Woody Plants," this no-nonsense advice is offered:

"Planting for structural effect is crucial: the permanent planting creates the 'bones' of the garden: bones provided by the woody plants, that is trees, shrubs, including roses, and woody climbers. This long-term structure provides a permanent backdrop against which the more ephemeral decorative or edible elements provide seasonal relief. For a large part of the year in a temperate climate, you may look at a wintery scene that is dependent on the shape and form of your plants rather than on flowers."

"The Essential Garden Maintenance Workbook" gives a sense of how orderly and systematic the process of doing a garden makeover could be. This useful book will help an inexperienced gardener get a grip on how to whip a garden into shape. While the somewhat general horticultural information may

be too shallow for some gardeners, it conveys the essentials necessary to become proficient in the complex field of gardening and garden design. After reading this book, I understand how to alter my garden so that it works for me, rather than the other way around.

Local Experts for Local Gardens

When authors Carol and Norman Hall started gardening in the Pacific Northwest in the 1970s, they had to learn to grow their plants by trial and error because most gardening books of the time addressed only East Coast weather conditions, such as summer rain and winter freezing. Too bad the Elisabeth C. Miller Library didn't exist then! When the library opened in 1985, it began to offer hundreds of books about gardening in our region by Pacific Northwest authors, the majority of which have been published within the last 15 years.

However, perhaps it's just as well the authors had to figure it out on their own because their depth of understanding how the Pacific Northwest climate affects plants is impressive. Although the question of where the boundaries of the Pacific Northwest lie is open to debate, the Halls define them as: the areas stretching between the ocean coast and the Cascade Range, and between latitude 51° in British Columbia and latitude 41° in Northern California. The northern boundary was chosen because north of latitude 51° the "difference between high and low temperatures becomes smaller and light intensity starts to diminish even on clear days... gardening conditions beyond this point are not those of the Pacific Northwest, but those of coastal Alaska." The southern border seems a bit more arbitrary, especially on the coast, but the authors note, "It's only after negotiating the steep descent from [the Cascade Range] to the valley floor and seeing the palm trees lining the streets of Redding, California, that you know you've suddenly entered a whole new gardening world." The unifying climatic conditions that define the region are wet, mild winters and dry summers.

This large-format book with 351 pages and a liberal use of color photographs is divided into four sections, which include an introduction to the region, a 12-month maintenance calendar, discussions of recommended plants, and solutions to common gardening problems.

Detailed descriptions of climate, soils and horticultural conditions are given about the region's seven sub-regions, which include the Georgia Basin/Puget Trough, the Olympic Rain Shadow, Puget Sound, Pacific Coast (northern section), Pacific Coast (southern section), the Cascade Slopes/Outflow Valleys and Willamette. The authors recommend their favorite plants that grow well in the Pacific Northwest according to plant types such as ornamental trees, shrubs, bulbs and others. Instructions on caring for the recommended plants always refer to specific Pacific Northwest climate considerations. For example, heaths and heathers need supplemental water during our typical regional summer droughts for the first two years until they become established.

From the perennials chapter on alpine plants:

"Since most [alpines] are fully exposed in their native habitats, true alpine plants need full sun—but since they grow at such high altitudes, they like cool sun; most need protection from hot sun. In addition, since mountaintops lack a thick buffering layer of soil to hold summer heat in, they need cool summer nights and a cool root run."

If all this sounds familiar, it should: although alpine-growing conditions are hard to replicate in most climates, they're a near-perfect match for the peculiar climate of the Pacific Northwest. The only thing that needs careful watching is drainage: Most true alpines need very well-drained soil, especially in winter.

"Timber Press Guide to Gardening in the Pacific Northwest" didn't help me solve the mystery of my runty corn or floppy peonies,

but now I feel like an expert in growing heaths and heathers: A full 8 1/2 pages are devoted to these sub-shrubs, which regional gardeners seem to love second only to rhododendrons. Perfectly suited to growing conditions in the Pacific Northwest, *Calluna* (heather) and *Erica* (heath) need annual light shearing, typically just after flowering, before new growth starts. This is an excellent general gardening reference that focuses on the Pacific Northwest climate like no other. ~

Bibliography with other recommended maintenance books:

- Alexander, Rosemary. "The Essential Garden Maintenance Workbook." Portland, OR: Timber Press, 2006. ISBN: 978-0881927832, \$34.95
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- "Plant Care." Newton, CT: Taunton Press, 1994. ISBN: 978-1561580866, out of print, but used copies are available. (Reprints of practical maintenance articles from "Fine Gardening" magazine. A good, concise gardening primer. Visit Taunton Press's excellent website for articles and how-to videos:
<http://www.taunton.com/finegardening/>)
- Robson, Mary and Pfeiffer, Christina. "Month-by-Month Gardening in Washington & Oregon: What To Do Each Month to Have a Beautiful Garden All Year." Nashville, TN: Cool Springs Press, 2005. ISBN: 978-1591861065, \$24.99
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